

## 01. Introduction

- Research on adolescent encounters with natural environments shows that **nature exposure** can positively affect well-being (Lopes et al., 2020; Maes et al., 2021; Puhakka, & Hakoköngäs, 2024; Young et al., 2022) and certain social behaviours (Liu et al., 2024).
- Time in nature** can enrich solitude and reduce loneliness (Astell-Burt et al., 2022; Rodriguez et al., 2023; Samangoeei et al., 2023), yet solitude in adolescence can feel painful, and excessive time alone is linked to poor adjustment (Larson, 1990).
- Few studies explore how adolescents' attitudes toward nature-based solitude (N-b S) relate to:
  - Well-being
  - Social connection
  - How they choose to spend their free time

## 02. Objectives

This study explored adolescents' preference for nature-based solitude and its associations with solitude views and well-being, including emotional reactivity, rumination, social anxiety, connection, and affect.

- RQ1:** Is a preference for solitude in natural environments associated with:
- more positive feelings about solitude in adolescents?
  - higher levels of psychological well-being in adolescents?

**RQ2:** Do these associations differ according to gender or age?

**RQ3:** Is there a link between adolescents' feelings of social connection and their attitude toward being alone in nature?

## 03. Methodology

- Year 1 data (2021–2023) from an ongoing longitudinal study on Canadian adolescents' solitude preferences. Survey administered via Qualtrics by trained graduate research assistants.

### Participants:

- 237 adolescents age 11-18 (Mage=14.48, SD=2.22).
- Gender: 42% male (n=101), 53% female (n=125), 2% non-binary (n=5), 1% other (n=3), 1% preferred not to say (n=3).
- Age: 46% early adolescents (n=108), 38% mid-adolescents (n=91), 16% late adolescents (n=38).

### Measures:

- Loneliness and Aloneness (Marcoen et al., 1987)
- Ruminative Thinking Style (Brinker & Dozois, 2009)
- Emotional Reactivity (Nock et al., 2008)
- Social Anxiety (La Greca et al., 1993)
- PANAS (Watson et al., 1988)
- Personal Well-being Index (Cummins & Lau, 2005)
- Preference for Nature-based Solitude (SPN) (Lee, 2013)
- Feelings about Solitude (FAS) (Lee, 2013)
- Solitary Activities (Hipson et al., 2021)

## 04. Analysis

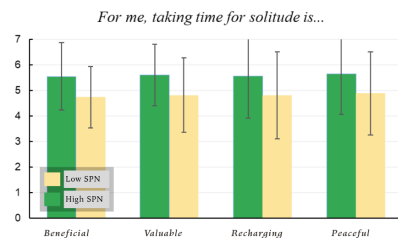
- Thematic analysis to organize adolescents' solitary activities following Hipson et al., (2021).
- Descriptive statistics to profile adolescent self-reported attitudes toward solitude.
- Inferential analyses including T-tests, ANOVA, and Pearson's *R* correlation to examine associations between solitude preferences and well-being measures.

## 05. Results

### Positive Solitude Appraisals

- Adolescents with high nature-based solitude preference ( $M > 5.13$ ) were significantly more likely to view solitude positively (e.g., peaceful and recharging).

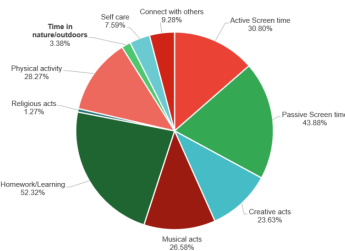
**Table 1.**  
FAS by Preference for N-b S (high/low split)



### Nature Preference ≠ Nature-based Solitude

- Positive attitudes toward being alone in nature did not correspond with actually spending more alone time outdoors. Only 3.38% (n = 8) reported doing so.

**Table 2.**  
Self-reported solitary activities



### Affinity for solitude and peer-related loneliness (LACA)

- Both strongly correlated with negative well-being outcomes.
- Poor appraisals of social relationships was linked to increased rumination, emotional reactivity, and social anxiety but not positive feelings about solitude.

### Nature-based solitude and Well-being

- Preference for nature-based solitude was not correlated to higher or lower levels of rumination, emotion reactivity, social anxiety, negative affect or peer-relations.
- Attitudes towards nature-based solitude appear to be independent from negative psychological constructs and well-being outcomes.

**Table 3.**  
Pearson's *R* correlations among variables.

	<i>r</i>		<i>r</i>
LACA Affinity	-	LACA Peer	-
RTS	-.335***	RTS	-.393***
ER	-.255***	ER	-.334***
SASC	-.310***	SASC	-.604***
PANAS Neg	-.280***	PANAS Neg	-.390***
PANAS Pos	.156*	PANAS Pos	.339***
PWI	.156*	PWI	.503***
SPN	-.417***	SPN	-.086
FAS	-.492***	FAS	-.064
Age	-.193**	Age	-.191**

Note. LACA subscales measured using a 4-pt Likert with 1 being often and 4 being never. Lower scores indicate higher affinity for solitude/peer-lessness.  
\*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$

### Gender and Age

- T-test revealed girls ( $M=5.25$ ) demonstrated significantly more positive attitudes about N-b S than boys ( $M=4.87$ ), ( $t(187)=2.01, p=.041, d=0.29$ ).
- One-way ANOVA identified late adolescents ( $M=5.58$ ) significantly preferred N-b S versus early adolescents ( $F(2, 195) = 3.40, p = .036, \eta^2 = .034$ ).

## 06. Conclusion

- Positive attitudes toward solitude in nature may not be enough to improve solitude experiences or well-being outcomes for adolescents.

### Few youth reported spending their free time outside.

- This points to a need for safe, supportive spaces that encourage intentional solitude in nature.
- School and community educators can help through program planning.

### Consider:

- Building time for unstructured and independent outdoor exploration.
- Engaging students in mindful solitude practices and framing as a peaceful and restorative experience.

### References

